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HATFIELD & DAWSON
CONSULTING ELECTRICAL ENGINEERS
4226 SIXTH AVE. N.W.
SEATTLE, WASHINGTON 98107

JAMES B. HATFIELD, PE
BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE

PAUL W. LEONARD, PE
L.S. CHRISTIANE ENSLOW

TELEPHONE
(206) 783-9151
FACSIMILE
(206) 789-9834

MAURY L. HATFIELD, PE
CONSULTANT
BOX 1326
ALICE SPRINGS, NT 5950
AUSTRALIA

February 5, 1991

RECEIVED

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Federal Communications Commission
Office of the Secretary

Ms. Donna Searcy
Secretary
Federal Communications Commission
Washington, D. C. 20554

Dear Madame Secretary:

Enclosed are the original and four copies of comments supporting a Notice of Inquiry or, in the alternative, a Notice of Proposed Rulemaking in connection with the Commission's Public Notice of January 14, 1991 re RM-7594.

Sincerely,

Benj. F. Dawson III, P.E.
President

BFD/BHS
encl.

Before the
Federal Communications Commission
Washington, D.C.

In the Matter of	)	
	)	
An Inquiry into the	)	RM-7594
Commission's Policies and Rules	)	
Regarding AM Directional Antenna	)	
Performance Verification	)	

Comments of Hatfield & Dawson Consulting Engineers, Inc.

INTRODUCTION

On December 15th 1989, the firms of duTreil Lundin & Rackley Inc., Hatfield & Dawson Consulting Engineers, Inc., Lahm, Suffa & Cavell, Inc., Moffett, Larson & Johnson, Inc., and Silliman & Silliman filed a Petition for Inquiry, requesting that the Commission open a general inquiry into the Commission's Rules regarding the performance verification of AM directional antenna systems. The Commission noted the receipt of the Petition in a public notice on January 14, 1991, and advised that comments could be filed in support or opposition to the Petition.

A Notice of Inquiry May Not Be Necessary

The Petition for a Notice of Inquiry, rather than for a Rulemaking, was chosen in part because of uncertainty about the Commission's reaction to the kind of sweeping changes in antenna performance verification that were suggested. The NPRM in Docket 87-264 made it obvious that the Commission may greet proposals for radical, sweeping changes in the medium wave ("AM") rules with favor. Under these circumstances, we believe that the intermediate step of a Notice of Inquiry in unnecessary, and that the Commission should proceed directly to a Notice of Proposed Rulemaking. Evidence has been steadily accumulating leading toward the conclusion that the use of modern analytical techniques allow the performance of medium wave directional

antennas to be predicted, established, and maintained without the elaborate methods that were necessary in the past.

Specific Rulemaking Action Advised

A Notice of Proposed Rulemaking should contain the following proposed changes in the Rules:

1. An application for licensing of a new directional antenna system or for a revised license for an existing directional antenna system should include submission of an analytical analysis of the anticipated antenna monitor values which will result from proper operation of the array. This analysis should be performed using moment method or other justifiable numerical analysis techniques, and should result in calculated operating conditions which produce the correct far field horizontal plane pattern.

2. The license application "performance verification" should provide DA/nonDA ratios for 10 points and their averages for all radials on azimuths where there is a maximum or minimum whose standard pattern field is less than the standard pattern RMS value.

3. The effective field shall be considered to be the product of the average ratio for the radial and the nominal omnidirectional radiation. The omnidirectional radiation shall be considered to be that described by Figure 8 -- or by a suitable theoretical analysis using 1 ohm loss -- with a tolerance of ±10%.

4. No graphical analysis, maps or other data should be required. Since the measurement points are used solely to establish DA/nonDA ratio, they should be described only by distance, and the time of their measurement is immaterial, except that the two measurements -- DA and nonDA for each point -- should be required to be taken within a short period of time, say two weeks. Only the field measurement values and distances from the array should be provided. Since the pattern characteristics for all allocation purposes are provided by the Standard Pattern, no plotted pattern should be required.

Compliance with the limits of the Standard Pattern value should be assumed if these ratios show operation to be within the Standard Pattern (or Augmented) values.

Such a Notice of Proposed Rulemaking should revisit the performance requirements (as opposed to the former specific equipment requirements) of the antenna sampling system rules. The elimination of field measurement as the primary performance evaluation tool will produce even greater dependence on the antenna array sampling system than is now the case, and therefore these requirements are critical to the proper operation of an array on a day to day basis.

A Conference of Interested Parties May Be Advisable

Because the matters suggested in the Request for a Notice of Inquiry are complex, and because there may be substantial differences of opinion among qualified experts on medium wave antenna matters, a conference or forum of interested parties would be a suitable procedure to develop specific proposed rule changes for an NPRM.

January 29, 1991

HATFIELD & DAWSON CONSULTING ENGINEERS, INC.

by Benj. F. Dawson III, P.E., President